

October 16, 2001

Department of the Interior
Mineral Management Services
Mail Stop 4024
381 Elden Street
Herndon, Virginia 20170-4817
Attention: Rules Processing Team (RPT)

Re: Incorporation of API Spec 2C by reference into the Federal Register

Dear Sirs,

I have read over the proposed rules dated July 19, 2001, Vol. 66, No. 139. I believe the intent of the proposed rules are in the best interest of safety for the OCS platforms, MODUS, Spars and TLPs.

Due to the nature of the following subject matter I am requesting that my identity and address be withheld.

The following comments are my opinions only and are based on my 25 years of experience working in the oil and gas industry.

Comments:

1. A requirement for two blocking systems on all cranes regardless of the year of manufacture or type would definitely improve the safety of operations. Most of the personnel offshore that operate cranes do so as a secondary function of their actual job scope therefore incorporating an anti-two blocking device would improve the safety of operations.
2. Due to some people's interpretation of specific words, I would like to see the comments addressing anti-two blocking systems be extended to also include high angle boom kick out systems for lattice boom cranes. There are many booms that are damaged each year due to crane operators pulling the booms into the boom stops therefore causing major structure damage to the boom section that strikes the boom stops. An incident of the nature could cause the entire boom to fall over the back of the crane or cause the boom to collapse and fall across the deck of the platform. Many of the booms that are damaged are equipped with high boom angle kick out systems that are equipped with a controlled override device. On these cranes primarily two things occur that causes boom damage: (1) the override device is tied off or jammed into the override mode therefore eliminating the high angle kick out system, (2) the operator will engage the override device, boom up close to the boom stops, set the load down, and then the boom

compression is released causing the boom to spring into the boom stops. Some companies have addressed this problem by eliminating the high angle override device and some have moved the override device to the point that it takes two people to override the high angle safety system. There are advantages and disadvantages to both of these solutions. API Spec 2C allows for the override device to be installed. Caution signs should be posted at the control station to warn the crane operator when the crane is equipped with an override device.

3. Record keeping on cranes is an important part of crane safety. Reviewing crane records from time to time to track repeated problems with a specific component could reduce the number of crane incidents due to component failure. If a specific component repeatedly fails every 12 months over an extended period of time, two things as a minimum should be considered: (1) replace the component every 11 to 11 ½ months, (2) determine the cause of failure and correct the problem.

4. Comments to questions (a-i) on page 5 & 6 from form 4310-MR-W

- (a) Will the addition of API Spec 2C to MMS's documents incorporated by reference increase safety and safe operations on the OCS?

Answer: Yes, although the present version of API Spec 2C needs to incorporate a new section on the design criteria of cranes that are to be mounted on the new floating platform structures. With the new technology for deep water production, cranes are being subjected to dynamic loading conditions that can not be compared to fixed platform structures.

- (b) Are there other standards for offshore cranes that may be appropriate for MMS to incorporate as part of MMS's regulation?

Answer: No. The API Spec 2C document was written to contend with the environment of the GOM for fixed platforms. There are other crane specifications but they address environmental conditions that only occur in the GOM during hurricane conditions.

- (c) When should MMS require all cranes on OCS fixed platforms to be fully compliant with API Spec 2C?

Answer: The only way that all cranes could conform to the latest edition of API Spec 2C would be if they were built during or after 1995. API Spec 2C was never intended to be retroactive to older cranes. Pre 1983 cranes with weld on ballrings with mounting bolts in the front and back of the ballrings only would be extremely costly, require extensive engineering time due to the crane manufacturers being out of business or a lack of original design records, and replacement ballrings could

easily have a delivery time of 18 to 26 weeks. Even this type of retrofit would not necessarily bring the older crane in compliance with the existing API Spec 2C. Adding two-blocking systems would be a relatively easy task considering an estimated 95% of the cranes are already equipped with them. The records showing when they were installed could be almost impossible to find considering some were installed after the original manufacturing dates and some have been modified to improve their performance over the years. There are cranes mounted in the OCS that were not built to any API standard due to no requirement. Some of these cranes are cherry pickers and truck cranes that have been removed from their rolling chassis and mounted on offshore structures that were not built to any API specification and cranes that were built specifically for offshore platforms that were not built to any API specification.

The changes that can be made:

- Actual Lift Capacity Charts instead of the structural charts that were once allowed. This is already a requirement in API RP 2D.
- Two blocking safety systems
- High angle safety systems for lattice boom cranes or cranes that use a boom hoist and wire rope to lift the boom.
- Wire rope safety factors to be upgraded to meet the latest API 2C Spec.
- Post caution signs on all Pre 83 cranes and all non API cranes to warn the crane operators that these cranes may not have the same safety factors as crane built after 1983.

- (d) Is a 1-year transition period enough time for industry to comply with the change proposed in 250.108(c)?

Answer: This will depend on how the items in (c) above are contended with and the items discussed below.

Records for older cranes may not be available due to various reasons.

1. The crane may have changed hands over the years
 2. API RP 2D has required records to be kept for only 2 years
 3. How will non existing cranes records be contended with?
- API Spec 2C requires the crane manufacturer to maintain all inspection and testing records for 20 years. This statement is referring to the design and testing of new cranes, some of these records are considered to be proprietary information by the crane manufacturer and would be detrimental to their business if made public.
 - Inspection records and repairs made in accordance with API RP 2D

and the crane manufacture's recommendations may need to be maintained for longer than two years in order to see a trend of repeated discrepancies but not the entire life of the crane. If the decision is made to maintain records longer than two years then I would recommend a maximum 4 to 5 years. This would be an adequate amount of time to see a trend of repeated discrepancies.

- There are certain records that should be maintained for the life of the crane in an appropriate place. Only number 2 below would be advantageous to keep in the crane files on the platform. The other records would be of no value to the crane operators or qualified inspectors.

1. Design calculations of the supporting deck structure that is performed by the design engineer of the platform. (Design engineers files and or platform owner's design files)
2. Initial crane installation inspection documents, load test certificate and ballring reading. (Crane manufacturers' files, platform files and or platform owner's design files)
3. Crane design calculations (Crane manufacturers' files only)
4. Non destructive weld testing by the original crane manufacturer. (Crane manufacturers' files and or platform owner's design files)

- (e) Should MMS establish a requirement similar to the U.S. Coast Guard (USCG), which requires cranes to be installed according to an approved crane plan and inspected and load tested by an Agency-approved third party when the crane is installed?

Answer: The installation, inspection and load testing of new cranes should be performed by the crane manufacturer or the crane manufacturer's qualified agent. It has been my experience that the third party agencies only witness the load test, and do not perform any type of inspection other than a walk-around, visual inspection. Even the Coast Guard admits they are not crane professionals. I fail to see the value of the third party witness. The end user should have a representative on site at the time of the load test therefore he can witness and sign off on the load test. The load test procedure is outlined quite clearly in API RP 2D and is only two pages long. A person can easily read the two pages in a matter of a few minutes to verify that the crane manufacturer's representative/qualified inspector is performing the procedure correctly.

- (f) Should MMS require all new cranes for installation on OCS fixed platforms to have an API monogram on the nameplate of the crane as evidence of certification of the anti-two block safety device?

Answer: All new cranes should have an API 2C monogram but not just to signify that the crane has a two-blocking system. The monogram signifies that the crane structure and components meets the quality and safety

standards that are set forth in the API Spec 2C document as a minimum.

- (g) Should a rental crane that is installed on OCS fixed platforms be considered a new crane and, therefore, be required to be fully compliant with API Spec 2C?

Answer: The words "rental crane" covers a large variety of lifting devices. It has been my experience that a considerable amount of rental cranes are grossly misrepresented which is evident from the incidents that are involved with them. The original model numbers are removed and they are renamed with fictitious model numbers and the original capacities increased past the original manufacturer's ratings. Some of these cranes are built "so to speak" in someone's back yard. Only a highly experienced person that has extensive knowledge of various crane manufacturers including crane manufacturers that have been out of business for over 20 years would be able to tell if the cranes were misrepresented. There is only a handful of people that comes close to having this type of experience. In my opinion rental cranes that are designed to pickup 10,000 lbs. or greater should be required to meet at least the 1983 API 2C Spec and bear a **legitimate** API Spec 2C monogram. The supporting k-frames, beams and clamps should also be required to be checked by a design engineer that can show evidence that these items can support the rental crane's weight and maximum lifting capacities at high and low boom angles. When the rental crane is to be attached to the platform structure a platform design engineer should review the area where the rental crane is to be attached to verify the supporting deck structure can support the rental crane and loads to be lifted. Due consideration should be given to the default dynamic loading conditions that is listed in API Spec 2C for the GOM if the rental crane is to be used to lift or lower loads to boats or other floating vessels.

Portable lifting devices such as a knuckle boom articulating jibs with capacities under 10,000 lbs. are often used to repair the platform cranes. Their use drastically improves the safety factors for lifting hoist, swing drives, boom sections, engines, etc. instead of building make shift racks and gin pole lifting devices. Due to the manner of which these portable lifting devices are transported and how they are used makes it impractical to be designed to API Spec 2C or to be equipped with an anti-two blocking device. These portable lifting devices should only be used by qualified crane mechanics/inspectors that are familiar with its operation and its lifting ability. These types of lifting devices should not be used to lift loads from boats unless there is an emergency situation and there is no other safe means to accomplish the lift. These portable lifting devices should be inspected upon completion of the

attachment to the platform and pull tested prior to use. A pre-use inspection should be performed typically daily if it stays set up for more than one day by a qualified inspector. They should not be used to lift personnel. A load chart should be in the possession of the crane mechanic/inspector that is operating the lifting device.

- (h) Should MMS limit the type of anti-two block devices that are acceptable? What are the known failure rates of the different types?

API Spec 2C's definition of anti-two block
Page 24, paragraph 12.6 ANTI-TWO BLOCK

Means shall be provided to protect hoist ropes, structural components and machinery from damage which may occur when two sheave groups (e.g., load block and boom head) come into contact as the hoist cable is drawn in. A control override device or proximity warning device may be used. Stalling of the hoist drum is acceptable where damage or loss of control would not result.

Answer: Yes, MMS should limit the types of two blocking systems that are used. Two blocking systems are installed on cranes to attempt to stop an operator from damaging the crane and dropping loads when the load block or overhaul ball is pulled into the boom tip sheave case by an operator that is not paying attention either by booming down or hoisting up. Each system that is described in API Spec 2C has their good points and bad.

1. Control override device: This type of system is primarily designed to stop the hoist from pulling by diverting hydraulic pressure and flow from the hoist motor to the hydraulic tank. The failsafe brake system in the hoist is automatically engaged by the internal springs to stop the load from falling. The override valve has to be depressed in order to lower the hoist or raise the boom to get out of the two block mode. Unfortunately some crane operators will tie the override valve down in the override position therefore bi-passing the two blocking system. Some companies have chosen to have the override valves removed from the crane. Therefore to get out of the two block mode your only choice is to move the control handle in the opposite direction.

*The boom tip valves (trigger mechanism) for the two block systems that are mounted to the boom use a hanging weight to keep the crane in the run mode. These types of valves use a spring that is located inside the valve to shift the valve to the two block mode when the blocks lift the hanging weight. In this case if the spring fails or the valve spool sticks the crane will stay in the run mode. This type of two block system should be checked during the pre-use inspection for proper operation and be properly maintained by

lubricating the spool and spring with grease or some other quality lubricant that will not easily be washed away by rain water.

*The boom tip valves (trigger mechanism) for the two block systems that hangs below the boom point and around the wire rope uses a spring to keep the valve in the run mode. If the spring fails the crane stays in the two block mode until the problem is repaired. The hydraulic hoses that connect to the valve must be secured to the valve slings or chains to keep the hoses from coming into contact with the running wire rope of the crane. This valve arrangement should be inspected during the pre-use inspection to make sure the hydraulic hoses are in good condition and properly secured.

2. Proximity warning device: When the crane is close to being two blocked an electric switch or air valve sends a signal to an audible alarm and or a flashing light that is located in the near vicinity of the crane operator. This type of device is not designed to stop the hoist from pulling. In the case where a mechanical crane is involved this is the most feasible manner to incorporate a two block system. As long as the switches, air valves and audible alarm devices are tested and maintained properly the system will give the operator fair warning before any damage can occur to the crane. This type of two block system should be inspected and tested during the pre-use inspection.
3. Stalling of the hoist drum: The boom point and blocks have to be designed to allow for a full impact collision. Unfortunately when a crane operator is not paying attention and runs the block into the boom point at full speed the wire rope, hoist, block, and boom point is heavily shock loaded and the resulting damage may not be immediately apparent. In this situation the hydraulic system is pushed to its maximum pressure instantaneously causing pressure spikes through the entire hydraulic circuit that is being functioned (hoses, valves, brake cylinders, pump sections, etc). Under controlled conditions raising the block or overhaul ball up until it contacts the boom point and slowly increasing the hydraulic pressure demonstrates that the two block system works is all well and fine. But in actual operations when two blocking occurs in uncontrolled conditions, various unsafe situations could occur. This two block system should be tested as few times as possible and only under controlled conditions. If the two block system is engaged during normal operations under an uncontrolled condition, a full inspection of the crane should be performed by a qualified inspector, although it is doubtful that a qualified inspector can actually inspect all the possible points of damage that could have occurred.

- (i) Should MMS consider an additional cost factor for retrofitting existing cranes with the anti-two block device (e.g., an associated cost for the amount of time a crane is expected to be out-of-service while it is being retrofitted?

Answer: Depending on the type of two block system of which the platform operator chooses to install an estimated time of which the crane would be out of service would be 6 to 12 hours. Two trips to the location may be required: (1) to survey the crane to make a list of the parts required (1-4 hours on location required) the crane would not have to be taken out of service at this time although the crane usage may need to be halted for a portion of these hours to allow the mechanic access, (2) to actual install the system 6-12 hours required, the crane would be out of service for the majority of this time. Since 1 year is being considered as an allowable time to have the systems installed, the out of service time should be capable of being scheduled without any platform down time. No hot work should be required to install these systems.